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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/970,334	10/03/2001	Daniel Byron	100.236US01	1897

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EXAMINER	
VU, THONG H	

ART UNIT	PAPER NUMBER
2142	

DATE MAILED: 12/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/970,334	BYRON, DANIEL	
	Examiner	Art Unit	
	Thong H Vu	2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 October 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 October 2001* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/03/01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claims 1-25 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-25 are rejected under 35 U.S.C. § 103 as being unpatentable over Woundy [6,031,841] in view of Tiedemann Jr., et al [Tiedemann, 5,914,950].

3. As per claim 1, Woundy discloses a method for scheduling downstream transmissions in a cable modem termination system [Woundy, cable modem and downstream bandwidth, col 1 lines 18-34], the method comprising:

when the selected queue has data, scheduling transmission of a packet of data for the selected queue [Woundy, the packet scheduler and a packet classifier uses a filter spec, col 1 lines 35-49];

However Woundy does not detail selecting a queue based on its priority level and a state of the queue; and when a packet is scheduled for the selected queue, determining whether higher priority queues have data before scheduling additional transmissions.

A skilled artisan would have motivation to improve the filter process of the packet classifier and found Tiedemann's teaching. Tiedemann discloses a method and apparatus for reverse link rate scheduling wherein the link transmission can be classifier into two classes [Tiedemann col 8 lines 32-42], Channel scheduler with the queue size

[Tiedemann, col 9 lines 25-54], creates a priority list with all scheduled users, the highest and lowest priority [Tiedemann, col 11 lines 20-30], the next highest priority [Tiedemann, col 16 lines 28 et seq], the channel scheduler starts at state 240 [Tiedemann, col 15 lines 49-65 et seq]; the channel condition [Tiedemann, col 17 lines 40-60 et seq] and transmission of the additional data in the queue can be scheduled [Tiedemann, col 22 lines 24-34]

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the technique for link rate scheduling as taught by Tiedemann into the Woundy's apparatus in order to utilize the scheduler process. Doing so would provide a capability to control the data rate over the high speed network such as Internet.

4. As per claim 2, Woundy-Tiedemann disclose selecting a queue with the highest priority level [Tiedemann, selecting a queue with a preferred rate, col 11 lines 53-64]; determining whether there is data in the selected queue; when there is no data in the selected queue, moving to another queue; and when there are no additional queues at the priority level, moving to the next priority level [Tiedemann, the next highest priority, col 16 lines 1-32].

5. As per claim 3, Woundy-Tiedemann disclose a packet of data is scheduled for the selected queue [Woundy, the packet scheduler, col 1 lines 35-49], determining whether a usage limit has been exceeded for the selected queue; when the usage limit

is exceeded, removing the selected queue from further consideration for scheduling transmissions as inherent feature of filter spec [Woundy, the filter spec, col 1 lines 35-49. it was obvious the filter is set by the threshold parameters for reject or remove the invalid requests].

6. As per claim 4, Woundy-Tiedemann disclose determining whether higher priority queues have returning to the highest priority level; and checking active queues at each priority level until reaching a queue with data [Tiedemann, a higher priorty, col 33 lines 5-17].

7. As per claim 5, Woundy-Tiedemann disclose a method for scheduling transmission of downstream data in a cable modem termination system [Woundy, cable modem and downstream bandwidth, col 1 lines 18-34], the method comprising:

allocating a selected percentage of bandwidth for use by each of a plurality of queues [Tiedemann, the scheduler allocates a link capacity, col 12 lines 1-55;col 13 lines 12-32; col 14 lines 58-67;col 16 lines 1-65; the percentage of the transmit power, col 26 lines 51-65];

when a queue is idle, sharing the bandwidth among active queues in a ratio proportionate with the percentage of bandwidth assigned to each of the plurality of queues [Woundy, end users share bandwidth, col 1 lines 18-34].

8. As per claim 6, Woundy-Tiedemann disclose allocating a selected percentage of bandwidth comprises allocating a minimum percentage of the bandwidth for each queue Tiedemann, the percentage of the transmit power, col 26 lines 51-65].

9. As per claim 7, Woundy-Tiedemann sharing the bandwidth among active queues comprises shortening a time interval for transmission when active queues have met their respective bandwidth limit and at least one queue is idle [Woundy, end users share bandwidth, col 1 lines 18-34].

10. As per claim 8, Woundy-Tiedemann disclose a method for scheduling transmission of downstream data in a cable modem termination system [Woundy, cable modem and downstream bandwidth, col 1 lines 18-34], the method comprising:

scheduling transmission of packets of data in a plurality of prioritized queues in order of priority [Tiedemann, the channel scheduler creates a priority list having the highest and lowest priority, col 11 lines 20-30]; and

limiting each queue to a maximum amount of data in a time interval to allow low priority queues to transmit data [Tiedemann, maximum rate in a time interval, col 9 lines 1-23; col 13 lines 12-32].

11. As per claim 9, Woundy-Tiedemann disclose checking for data in higher priority queues upon scheduling transmission of a packet [Tiedemann, a higher priorty, col 33 lines 5-17].

12. As per claim 10, Woundy-Tiedemann limiting each queue comprises removing the queue from consideration for scheduling transmissions when a threshold is exceeded [Tiedemann, remove from the priority list, col 12 lines 1-22].

13. As per claim 11, Woundy-Tiedemann disclose a method for controlling access to a shared medium, the method comprising:

classifying packets received into a plurality of flows [Woundy, the packet scheduler and a packet classifier uses a filter spec in a cable modem, col 1 lines 35-49];

policing each flow for compliance with selected data rates [Tiedemann, continuously monitoring, col 30 lines 16-35; col 33 lines 18-32];

storing data for each flow in one of a plurality of queues at a selected priority level [Tiedemann, the channel scheduler creates a priority list, col 11 lines 20-30]; and

scheduling transmissions from the plurality of queues, including selecting a queue based on its priority level and a state of the queue, when the selected queue has data, scheduling transmission of a packet of data for the selected queue, and when a packet is scheduled for the selected queue, determining whether higher priority queues have data before scheduling additional transmissions [Tiedemann, scheduler with the priority list, col 12 lines 1-55 et seq].

14. As per claim 12, Woundy-Tiedemann disclose selecting a queue with the highest priority level [Tiedemann, selecting a queue with a preferred rate, col 11 lines 53-64; the highest priority, col 16 lines 28 et seq]; determining whether there is data in the selected

queue; when there is no data in the selected queue, moving to another queue; and when there are no additional queues at the priority level, moving to the next priority level [Tiedemann, the next highest priority, col 16 lines 28 et seq].

15. As per claim 13, Woundy-Tiedemann disclose a packet of data is scheduled for the selected queue, determining whether a usage limit has been exceeded for the selected queue; when the usage limit is exceeded, removing the selected queue from further consideration for scheduling transmissions [Tiedemann, remove from the priority list, col 12 lines 1-22].

16. As per claim 14, Woundy-Tiedemann disclose determining whether higher priority queues have data comprises returning to the highest priority level; and checking active queues at each priority level until reaching a queue with data [Tiedemann, the next highest priority, col 16 lines 1-32].

17. As per claim 15 Woundy-Tiedemann disclose a method for scheduling transmission of downstream data in a cable modem termination system [Woundy, the packet scheduler and a packet classifier uses a filter spec in a cable modem, col 1 lines 35-49], the method comprising:

scheduling transmission of packets of data in a plurality of prioritized queues in order of priority [Tiedemann, creates a priority list, col 11 lines 20-30]; and

checking for data in high priority queues each time a packet of data is scheduled

for transmission [Tiedemann, scheduler with the priority list, col 12 lines 1-55 et seq].

18. As per claim 16, Woundy-Tiedemann disclose a method for scheduling downstream transmissions in a cable modem termination system [Woundy, cable modem and downstream bandwidth, col 1 lines 18-34], the method comprising:

selecting a highest priority level [Tiedemann, scheduler with the priority list, col 12 lines 1-55 et seq];

selecting a queue in the highest priority level [Tiedemann, the channel scheduler creates a priority list having the highest and lowest priority, col 11 lines 20-30];

determining whether there is data in the selected queue; when there is no data in the selected queue, moving to the next queue; when there are no addition queues at the priority level, moving to the next priority level [Tiedemann, the next highest priority, col 16 lines 28 et seq];

when there is data in a selected queue, scheduling transmission of a packet of data; when a packet is scheduled, determining whether a usage limit has been exceeded [Tiedemann, not exceed a threshold, col 10 lines 1-12];

when the usage limit is exceeded, removing the queue from further consideration for scheduling transmissions [Tiedemann, remove from the priority list, col 12 lines 1-22]; and

when a packet is scheduled, returning to the highest priority level to allow priority handling of late moving priority data [Tiedemann, the channel scheduler returns to step 216, col 12 lines 1-22; the channel scheduler returns to step 248, col 16 lines 1-33].

19. As per claim 17, Woundy-Tiedemann disclose selecting a queue based on its priority level and a state of the queue; when the selected queue has data, scheduling transmission of a packet of data for the selected queue; and when a packet is scheduled for the selected queue, determining whether higher priority queues have data before scheduling additional transmissions [Tiedemann, scheduler with the priority list, col 12 lines 1-55 et seq].

20. As per claim 18, Woundy-Tiedemann disclose selecting a queue with the highest priority level; determining whether there is data in the selected queue, when there is no data in the selected queue, moving to another queue; and when there are no additional queues at the priority level, moving to the next priority level [Tiedemann, the next highest priority, col 16 lines 1-32].

21. As per claim 19, Woundy-Tiedemann disclose a packet of data is scheduled for the selected queue, determining whether a usage limit has been exceeded for the selected queue; when the usage limit is exceeded, removing the selected queue from further consideration for scheduling transmissions [Tiedemann, remove from the priority list, col 12 lines 1-22].

22. As per claim 20, Woundy-Tiedemann disclose determining whether higher priority queues have data comprises returning to the highest priority level; and checking

active queues at each priority level until reaching a queue with data [Tiedemann, the next highest priority, col 16 lines 1-32].

23. As per claim 21, Woundy-Tiedemann disclose a downstream scheduler for a cable modem termination system [Woundy, cable modem and downstream bandwidth, col 1 lines 18-34], the downstream scheduler including:

a classifier, adapted to receive incoming packets, and adapted to determine a traffic flow associated with the received packets [Woundy, the packet scheduler and a packet classifier uses a filter spec in a cable modem, col 1 lines 35-49];

a traffic policer, responsive to the classifier, the traffic policer adapted to monitor each flow for compliance with selected data rates and adapted to store the data packets in associated queues [Tiedemann, continuously monitoring, col 30 lines 16-35; col 33 lines 18-32]; and

a transmission scheduler [Tiedemann, the channel scheduler creates a priority list, col 11 lines 20-30], the transmission scheduler including a computer readable medium for performing a method comprising:

selecting a queue based on its priority level and a state of the queue, when the selected queue has data, scheduling transmission of a packet of data for the selected queue, and when a packet is scheduled for the selected queue, determining whether higher priority queues have data before scheduling additional transmissions [Tiedemann, scheduler with the priority list, col 12 lines 1-55 et seq].

24. As per claim 22, Woundy-Tiedemann disclose selecting a queue with the highest priority level; determining whether there is data in the selected queue; when there is no data in the selected queue, moving to another queue; and when there are no additional queues at the priority level, moving to the next priority level [Tiedemann, the next highest priority, col 16 lines 1-32].

25. As per claim 23, Woundy-Tiedemann dsiclsoe a packet of data is scheduled for the selected queue, determining whether a usage limit has been exceeded for the selected queue; when the usage limit is exceeded, removing the selected queue from further consideration for scheduling transmissions [Tiedemann, remove from the priority list, col 12 lines 1-22].

26. As per claim 24, Woundy-Tiedemann disclose determining whether higher priority queues have data comprises returning to the highest priority level; and checking active queues at each priority level until reaching a queue with data [Tiedemann, the next highest priority, col 16 lines 1-32].

27. As per claim 25, Woundy-Tiedemann disclose a computer readable medium for causing a computer to execute a method, the method comprising:

selecting a highest priority level [Tiedemann, scheduler with the priority list, col 12 lines 1-55 et seq];

selecting a queue in the highest priority level [Tiedemann, the channel scheduler creates a priority list having the highest and lowest priority, col 11 lines 20-30];

determining whether there is data in the selected queue; when there is no data in the selected queue, moving to the next queue; when there are no additional queues at the priority level, moving to the next priority level [Tiedemann, the next highest priority, col 16 lines 28 et seq];

when there is data in a selected queue, scheduling transmission of a packet of data; when a packet is scheduled, determining whether a usage limit has been exceeded [Tiedemann, not exceed a threshold, col 10 lines 1-12;

when the usage limit is exceeded, removing the queue from further consideration for scheduling transmissions [Tiedemann, remove from the priority list, col 12 lines 1-22]; and

when a packet is scheduled, returning to the highest priority level to allow priority handling of late arriving priority data [Tiedemann, the channel scheduler returns to step 216, col 12 lines 1-22; the channel scheduler returns to step 248, col 16 lines 1-33].

28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USP 6,772,218 1. Noel Jr., et al disclose a option card or cable modem using traffic management scheduler, a classifier hardware with filter rules.

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Thong Vu, whose telephone number is (571)-272-3904.
The examiner can normally be reached on Monday-Thursday from 7:00AM- 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, *Jack Harvey*, can be reached at (571) 272-3896.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-9700.

Any response to this action should be mailed to: Commissioner of Patent and Trademarks, Washington, D.C. 20231 or faxed to :

After Final	(703) 746-7238
Official:	(703) 746-7239
Non-Official	(703) 746-7240

Hand-delivered responses should be brought to Crystal Park 11,2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Thong Vu
Patent Examiner
Art Unit 2142